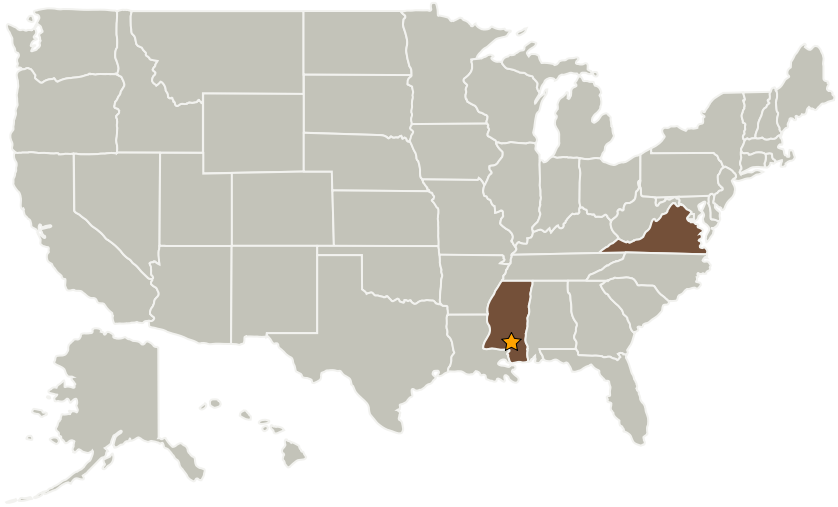
# Adaptive Wireless Transceiver, Phase II

Completed Technology Project (2006 - 2008)

## Project Introduction

Many wireless technologies are already available for sensor applications. It is inevitable that many non-interoperable wireless technologies between 400 MHz and 5.8 GHz will be deployed for wireless sensor applications. As a result, monitoring across different wireless interfaces will become a challenge for sensor data collection and management due to lack of interoperability between them. Mobitrum is proposing a dynamically adjust transceiver that uses a waveform-DNA approach similar to a process of DNA (Deoxyribonucleic acid) coding structure used in medical world. This effort addresses important technology gap for interfacing with various wireless sensor networks and transmitting/receiving data over short and long distances. This effort will include: (1) Finding the waveforms of RF signals, (2) Reading/comparing the waveform, and (3) Controlling the waveform. The waveforms of the interested RF signals are pre-digitized and stored in the transceiver to compare with the one that is actually received through a wideband antenna. Once the type of a waveform is identified, the intelligent software in the transceiver will configure its RF characteristics to adapt wireless interface dynamically. The proposed enabling technology will provide NASA an effective wireless device for Earth science, data relay, and other situational awareness.

## Primary U.S. Work Locations and Key Partners

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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Stennis Space Center (SSC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| ★Stennis Space Center(SSC) | Lead Organization | NASA Center | Stennis Space Center, Mississippi |
| Mobitrum Corporation | Supporting Organization | Industry | McLean, Virginia |

| Primary U.S. Work Locations | |
|---|---|
| Mississippi | Virginia |

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.2 Structures
    - TX12.2.3 Reliability and Sustainment